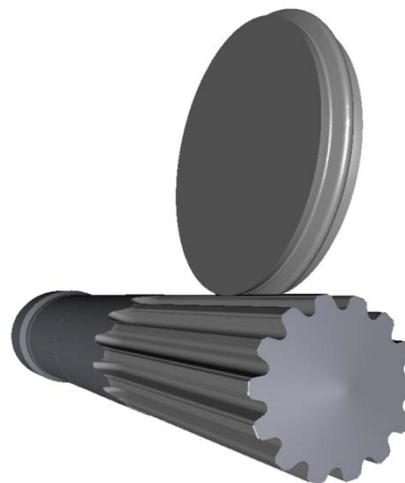


## Punch Ø20.12

A27-010

This Punch is ground from a preground HSS or carbide blank. Grinding wheels are ceramic bonded, these allows changes on the spline geometry fast and economically by simply modify the wheel-DXF and dress the new geometry on the same wheel.

For keeping small tolerances on splines the wheel can be kept sharp by reconditioning the wheelform on the dressing unit in automatic cycles.



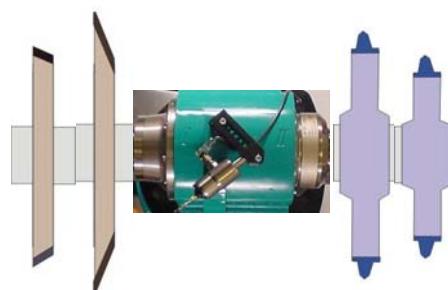
### 1. Cycletime for Production

Workpiece:	Ø22.5 Ø20.5 Ø20.2, 8 passes for fin.				
Material HSS					
Operations	Probe	cyl tip pregr	cyl tip fin	pregr form	fin form
Feed [mm/Min]	2000	10	35	25	100
Power [kW]		4	3	2	2
Cutting speed [m/s]		32	32	32	32
Used wheels		1	2	3	4
Grinding time [s]	8	286	85	1640	3646
Total cycle time	94 Min 25				

The cycle times are indicative. Material to be ground, grinding wheels, coolants can influence the cycle times considerably.

### 2. Used Grinding Wheels

1	1V1 Ø150 B126
2	1V1 Ø125 B46
3	DXF Ø100 B91 dressable
4	DXF Ø40 B46 dressable



2 1

3 4

### 3. Machine and Software Requirements

Machines: 5 axes CNC grinders : GEMINIdmr linear Coolant: Synthetic Oil, pressure 11 bar

Control: Fanuc 31i

Accessories: Dressing unit, Steady Rest (downholder)

Responsible engineer: OP. 8.7.13

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